

Claims

1-50. (canceled)

51. (previously presented) An integrated circuit comprising:

a supporting structure; and

an enhanced-surface-area electrically conductive ruthenium-containing layer situated on the supporting structure, the ruthenium-containing layer having a non-textured surface adjacent the supporting structure and a textured surface with a mean feature size of at least about 100 Angstroms opposite the non-textured surface.

52. (previously presented) An integrated circuit comprising:

a supporting structure; and

an enhanced-surface-area electrically conductive nitrogen-passivated ruthenium-containing layer situated on the supporting structure, the ruthenium-containing layer having a non-textured surface adjacent the supporting structure and a textured surface with a mean feature size of at least about 100 Angstroms opposite the non-textured surface.

53. (previously presented) An integrated circuit comprising:

a supporting structure; and

an enhanced-surface-area electrically conductive nitrogen-passivated and oxygen-passivated ruthenium-containing layer situated on the supporting structure, the ruthenium-containing layer having a non-textured surface adjacent the supporting structure and a textured

surface with a mean feature size of at least about 100 Angstroms opposite the non-textured surface.

54.-71. (canceled)

72. (previously presented) The integrated circuit of claim 51, wherein the ruthenium-containing layer includes a nitrogen-passivated portion at the textured surface.

73. (previously presented) The integrated circuit of claim 51, wherein the ruthenium-containing layer includes a nitrogen-passivated and oxygen-passivated portion at the textured surface.

74. (previously presented) The integrated circuit of claim 51, wherein the supporting structure is a plug formed in a dielectric material.

75. (previously presented) The integrated circuit of claim 51, wherein the supporting structure includes a plug that extends outwardly from a surface of the supporting structure.

76. (previously presented) The integrated circuit of claim 51, wherein the supporting structure is a plug formed in a dielectric material.

77. (previously presented) The integrated circuit of claim 51, wherein the supporting structure includes a plug that extends outwardly from a surface of the supporting structure.

78. (previously presented) An integrated circuit comprising:
a supporting structure that includes a conductive plug; and
an enhanced-surface-area electrically conductive ruthenium-containing layer situated on
the supporting structure.

79. (previously presented) The integrated circuit of claim 78, wherein the conductive
plug extends outwardly from the supporting structure.

80. (previously presented) The integrated circuit of claim 78, wherein the conductive
plug is situated in an opening in a dielectric material.

81. (previously presented) The integrated circuit of claim 78, wherein the ruthenium-
containing layer has a non-textured surface adjacent the supporting structure and a textured
surface with a mean feature size of at least about 100 Angstroms opposite the non-textured
surface.

82. (new) An integrated circuit comprising:
a supporting structure; and
an enhanced-surface-area electrically conductive ruthenium-containing layer situated on
the supporting structure, the ruthenium-containing layer having a plurality of protrusions
extending outwardly from a surface of the supporting structure, the protrusions having first major
surfaces adjacent the supporting structure and second major surfaces facing outward from the

surface of the supporting structure, wherein the first major surfaces are substantially planar and the second major surfaces are substantially non-planar and portions that extend at least about 100 Angstroms from the first major surfaces.